



## Quantile regression modelling of some Brazilian anthropometric data

Luna Hidalgo Carneiro\*

IBGE, Rio de Janeiro, Brasil - [lunahidalgo@gmail.com](mailto:lunahidalgo@gmail.com)

Pedro Luis do Nascimento Silva

IBGE – Escola Nacional de Ciências Estatísticas, Rio de Janeiro, Brasil  
[pedro-luis.silva@ibge.gov.br](mailto:pedro-luis.silva@ibge.gov.br)

In Brazil, the main recent official source of basic anthropometric data (height and weight) is the Consumer Expenditure Survey (POF) conducted by the IBGE in 2002/03 and 2008/09. Estimates of the median height (length for babies) and weight (body mass) are released by sex and age group, with federation units as the lowest level of geographic disaggregation. The age groups used vary from 0 to 19 in 1 year intervals, 20 to 34 in 5 year intervals, 35 to 74 in 10 year intervals. 75 and above is the last interval. As a consequence, only small samples are available to estimate these medians in many of the federation units and sex  $\times$  age groups. Nevertheless, there is increasing demand for such estimates, and for estimates for even lower levels of geographic disaggregation. In this paper, linear quantile regression models were used to obtain estimates for selected quantiles (centiles 10, 50 and 90) of height and weight by sex and age in each federation unit, using data from the POF 2008/09. The Quantile Regression estimates yielded noticeable improvements in comparison to direct estimates for the same parameters.

**Keywords:** anthropometry; sample survey; quantile regression; small domains.